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Winter 2007

Your Health Research Dollars at Work

An Update from the Canadian Institutes of Health Research

President's Message

Canadians have said that environmental issues are now a top concern

Consultations led by CIHR very early on highlighted environmental issues as a significant health research concern. As a result, CIHR has allocated funding to understand the links between environmental changes and health. Over the past six years, CIHR investments in this area have increased almost 9-fold, funding research on environmental change and asthma, pregnancy and children.

Consultation has also meant partnerships, which help increase research funding. For example, CIHR and the BC Michael Smith Foundation for Health Research support the Bridge Program, a training initiative that fuses public health, engineering and policy. Trainees focus on one of six research priorities, such as the *Chemicals, Health and Pregnancy Study*. This study examines how commonly used chemicals such as flame retardants can leach into human tissue, potentially causing health problems. CIHR also supports research into clean air, including the work of Dr. Murray Finkelstein of McMaster University who is studying the relationship between air pollution exposure and mortality rates in a group of people from Hamilton and Toronto. And finally, in collaboration with many partners, CIHR is funding a population cohort initiative to understand the relationship between indoor air quality and the increase in childhood asthma.

CIHR's investments in environmental health will provide solid research evidence to help Canada's governments respond to the public's concerns on this most important and pressing issue.

Dr. Alan Bernstein, O.C., FRSC
President, Canadian Institutes of Health Research

CIHR-FUNDED BREAKTHROUGH

Safe, Inexpensive Drug Found to Kill Most Cancers

Dr. Evangelos Michelakis

Researchers at the University of Alberta have discovered that a drug used for decades to treat metabolic disorders kills lung, breast and brain cancer cells – but not healthy cells. The breakthrough, covered by media around the world, could move into human clinical trials quickly because the molecule has already been successfully tested on humans for metabolic disorders.

The CIHR-supported research, led by cardiologist Dr. Evangelos Michelakis, showed that dichloroacetate (DCA) shrinks tumours in both animal and human tissue experiments. There are several advantages to DCA: it can be taken orally, it can reach areas in the body that other drugs cannot, there are no nasty side effects, and, since it is not patented, it would likely be an inexpensive drug to administer – only about $2 a dose.

However, as DCA is not patented, Michelakis is concerned that it may be difficult to attract funding from private investors to test it in clinical trials. He is grateful for the support he has already received from publicly funded agencies, such as CIHR, and is hopeful such support will continue and allow him to conduct clinical trials of DCA on cancer patients.

"This preliminary research is encouraging and offers hope to thousands of Canadians and all others around the world who are afflicted by cancer, as it accelerates our understanding of, and action around, targeted cancer treatments," said Dr. Philip Branton, Scientific Director of CIHR's Institute of Cancer Research.

About the Canadian Institutes of Health Research

The Canadian Institutes of Health Research (CIHR) is the Government of Canada's agency for health research. CIHR's mission is to create new scientific knowledge and to catalyze its translation into improved health, more effective health services and products, and a strengthened Canadian health care system. Composed of 13 Institutes, CIHR provides leadership and support to more than 10,000 health researchers and trainees across Canada.

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NATIONAL

Prescription Opioid Abuse More Prevalent than Heroin

A major CIHR-funded study has found that prescription opioids – and not heroin – are the major form of illicit opioid use in Canada. Commonly prescribed opioids include Oxycontin, morphine, Demerol, Percodan and Tylenol 3 or 4. "Our drug control policies ought to be targeting prescription opioid abuse more effectively. But we also need to ensure we do not compromise legitimate access to and uses of prescription opioids," says lead researcher, Dr. Benedikt Fischer at the University of Victoria's Centre for Addictions Research. The five-year study was based on a follow-up assessment of 585 participants from Vancouver, Edmonton, Toronto, Montreal, Quebec, Fredericton and St. John's.

Reducing Wait Times for Children's Mental Health Services

CIHR is funding a series of projects to improve access to health care for children struggling with mental health disorders. "The CIHR Team in Access to Children's Mental Health Services, led by Dr. Patrick McGrath (IWK Health Centre and Dalhousie University) and Dr. Charles Cunningham (McMaster University), will help improve Canadian children's health by reducing wait times for children's mental health services," said Dr. Alan Bernstein, President of CIHR. "The information collected by this team will help policy- and decision-makers determine what the standard intervention treatments should be." The team includes researchers from the University of Western Ontario, University of Calgary and Simon Fraser University.

CIHR and Rx&D Team Up to Strengthen Clinical Research

The Canadian Institutes of Health Research (CIHR) and Canada's Research-Based Pharmaceutical Companies (Rx&D) are pleased to announce the renewal of the CIHR/Rx&D Collaborative Research Program which is the largest and most successful public-private research program in the country. Over the past five years, the Program has invested over $320 million in many valuable research projects at universities and teaching hospitals across Canada aimed at improving health and saving lives. Project examples include: finding new and more effective ways to prevent type 2 diabetes, improve pain management, and create more effective treatments for cancer, Alzheimer's, heart disease, hepatitis C and HIV/AIDS, to name a few. The Program supports research through personnel awards such as CIHR-Rx&D Research Chairs and initiatives like research grants and clinical trials. The Program which has been in place for more than 15 years reflects an ongoing commitment to research and the creation of new and innovative ideas critical to improved health and Canada's competitiveness in the global knowledge-based economy.

EASTERN CANADA

The Healing Power of Plants

Charlottetown: CIHR is helping to strengthen a growing bioactives research community in Atlantic Canada through its support of Drs. Robert Hurta (biology) and Katherine Gottschall-Pass (family and nutritional sciences) at the University of Prince Edward Island. With funding from CIHR's Regional Partnerships Program, the researchers are studying the medicinal qualities of cranberries to determine whether eating them can slow the development of atherosclerosis (hardening of the arteries), which is the main cause of heart disease and stroke.

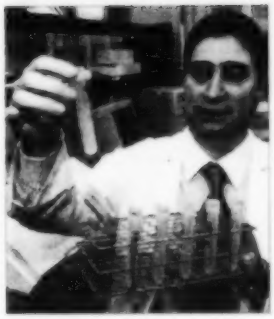
Newfoundlanders Help Science Find Obesity-causing Genes

St. John's: Approximately 1500 volunteers from Newfoundland and Labrador are participating in a two-year CIHR-funded study to discover the genetic reasons why overweight people have so much trouble losing weight. Led by Dr. Guang Sun at Memorial University of Newfoundland, the project is studying blood samples from volunteers to better understand the link between specific genes and body fat. Newfoundland and Labrador has a higher percentage of obese people than anywhere else in Canada.

Dr. Guang Sun

CENTRAL CANADA

Cree Cures May Curb Diabetes Epidemic



Dr. Pierre Haddad

Montreal: A CIHR-funded study led by Dr. Pierre Haddad at the University of Montreal suggests that Indigenous knowledge may be of benefit in treating diabetes. The study shows that several plant extracts used for centuries medicinally by Cree elders in Northern Quebec can relieve a number of symptoms that are typical of type 2 diabetes such as frequent urination and increased thirst. With more research, scientific evidence of these traditional cures could one day be used to help reduce the burden of diabetes in Aboriginal communities.

Discovery Could Help Control Infections

Dr. Chris Whittield (lead researcher), University of Guelph

Guelph and St. Andrews: A CIHR-funded study involving researchers from the University of Guelph and the University of St. Andrews in Scotland could help fight deadly disease-causing bacteria. Researchers recently discovered a class of membrane proteins that allow bacteria to elude the immune system. The research may ultimately help in designing drugs to fight meningitis, blood diseases and other disorders.

New Computer Model to Unravel How Immune System Works

Montreal, Boston, Baltimore: CIHR-funded researchers at the University of Montreal, working with teams at the Massachusetts General Hospital and Johns Hopkins University, have developed a computer model that makes it possible to study the cellular battleground (called a phagosome) where infectious pathogens are killed and digested. "We can now reach a better understanding of the molecular processes involved in infections by using a global approach based on proteomics and genomics," says Dr. Michel Desjardins at University of Montreal. "This approach will expedite the development of therapies and the production of new vaccines."

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"Mad-Cow" Protein May Play Role in Diabetes

Ottawa, Burnaby, Hamburg: CIHR-funded researchers at the Ottawa Health Research Institute have shown that a normal form of the prion proteins associated with Creutzfeld-Jakob disease may be involved in blood sugar regulation. This study could have implications for research into type 1 diabetes, which occurs when the immune system attacks the insulin-producing cells in the pancreas. Approximately 200,000 Canadians have type 1 diabetes. The discovery is the result of work by Postdoctoral Fellow Dr. Alexander Strom, Research Associate Dr. Gen-Sheng Wang, Senior Scientist Dr. Fraser Scott and collaborators from Simon Fraser University and the Heinrich-Pette-Institute in Hamburg.

CIHR Spinoff Only Canadian Firm to Win Tech Pioneer Award

Toronto: Amorfix Life Sciences, a CIHR spinoff based in Toronto, is one of 47 companies globally – and the only one from Canada – to receive this year's Technology Pioneer Award from the World Economic Forum. Amorfix, which focuses on the diagnosis and treatment of brain-wasting diseases, was founded with a grant from the CIHR Proof of Principle program to commercialize the discoveries of CIHR-supported researchers Drs. Neil Cashman and Marty Lehto at the University of Toronto.

Computer-assisted Program Will Detect Victims of Abuse

Dr. Farah Ahmad

Toronto: Dr. Farah Ahmad, a CIHR-funded researcher from St-Michael's Hospital in Toronto, is developing an innovative computer-assisted program that can help detect victims of abuse. "The computer-assisted intimate partner violence screening may offer an effective way for timely detection of victims of abuse by allowing the vulnerable population to share sensitive information through a computerized system, a method which could prove to be less intimidating for the victims," she says.

Researchers Study High Rate of Relapse for Anorexia Nervosa

Toronto: People who are treated for the eating disorder anorexia nervosa (AN) have a high rate of relapse and Dr. Jacqueline Carter wants to know why. The CIHR-funded researcher at the University of Toronto is tracking 100 patients who were successfully treated for AN at the Toronto General Hospital to identify other influencing factors, such as stressful life events, social support and coping abilities. "It makes little sense to spend a substantial amount of health-care funding on weight-restoration treatment for AN, given the high rate of relapse, without addressing the need to develop effective relapse prevention strategies," says Dr. Carter.

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WESTERN CANADA

CIHR Study Offers Hope for HIV in Africa

Winnipeg, Nairobi, Illinois: A CIHR-funded randomized controlled trial conducted in Kenya has discovered that male circumcision reduces the risk of men getting HIV by more than 50 %. The evidence was so compelling that the trial was stopped and uncircumcised men participating in the study were offered the surgical procedure. The trial was led by Dr. Stephen Moses from the University of Manitoba, working with researchers at the University of Nairobi and the University of Illinois.

Dr. Stephen Moses

E. coli Vaccine for Cattle Began with CIHR-funded Discovery

Saskatoon, Vancouver, Belleville: Bioniche Life Sciences Inc. of Belleville, Ontario, has received interim regulatory approval from the Canadian Food Inspection Agency for a cattle vaccine that could stop the spread of *E. coli* bacteria to humans. When injected into cattle, the vaccine eliminates most *E. coli* bacteria from the manure. The company is also seeking regulatory approvals in the US and UK. The experimental vaccine was created by Drs. Brett Finlay (University of British Columbia) and Andy Potter (University of Saskatchewan's Vaccine and Infectious Disease Organization), with funding from CIHR, the Canadian Bacterial Diseases Network, Bioniche and the Beef Industry Development Fund.

Dr. Andy Potter

CIHR's *Your Health Research Dollars at Work* is available to Members of Parliament, Senators and policy-makers to communicate the benefits of the Government of Canada's investment in health research. News items can be reproduced for use in householders and other communications materials. Visit CIHR's website to download this issue in electronic form: **www.cihr-irsc.gc.ca.**

CIHR also produces an information kit called *Your Health Research Dollars at Work 2005-2006*, that provides a snapshot of the research results that are making a difference to the health of Canadians, to our health-care system and to our economy. If you would like a copy, please contact Caroline Kay, CIHR's Production Coordinator, at **ckay@cihr-irsc.gc.ca.**

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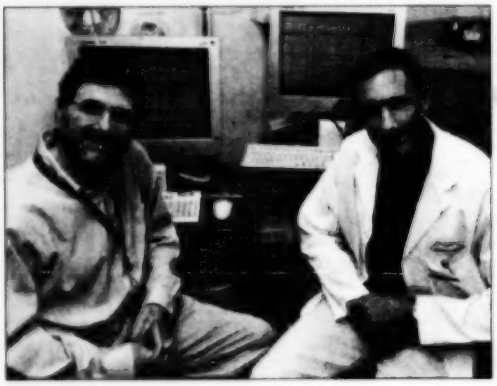
Dementia Discoveries Among "Most Important" Ever Made in Canada

Vancouver: Canada made international headlines in 2006 with two major breakthroughs in dementia research. CIHR-funded researchers at the University of British Columbia (UBC) and Vancouver Coastal Health Research Institute (VCHRI) discovered the genetic cause of an inherited form of frontotemporal dementia, which is the second most common type of dementia in those under the age of 65. More recently, Drs. Ian Mackenzie (UBC) and Howard Feldman (VCHRI) discovered the protein that accumulates within the brain in this form of dementia. "These are amongst the most important scientific discoveries ever made in Canada in dementia research," says Dr. Feldman.



Courtesy of Vancouver Coastal Health Research Institute

Dr. Howard Feldman (left) and Dr. Ian Mackenzie

Controlling Arthritis Pain with Non-addictive Drugs

Calgary: CIHR-supported researcher Dr. Jason McDougall of the University of Calgary has taken the first steps towards better understanding pain in persons with arthritis and finding new, non-addictive drugs to control this pain. In testing with rats, a new type of pain reliever called endomorphin 1 worked well in cases where knee joints had one-time, acute inflammation, but not for joints with chronic inflammation. The research provides valuable information needed to find ways of ensuring the medication will work in persons with chronic arthritis.

Upcoming Events

March 26, 2007: Dr. Bernstein, President, CIHR, to address the Canadian Club of Toronto

March 26-27, 2007: CIHR Workshop for Journalists on Health Services and Policy Research